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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,424	03/01/2004	David Schlossman	DS420	5398

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EXAMINER
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ROBINSON, ELIZABETH A

ART UNIT	PAPER NUMBER
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1773

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/791,424	SCHLOSSMAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Elizabeth Robinson	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 21-40 and 43-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20, 41, and 42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4-18-2006, 5-2-2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group 1, claims 1 through 20, 41 and 42, in the reply filed on March 12, 2007 is acknowledged. The traversal is on the grounds that Groups I and II do not require separate fields of search. This is not found persuasive, because Groups I and II are in different fields of search due to their classification in classes 428 and 427, respectively.

The requirement is still deemed proper and is therefore made FINAL.

Applicant's election with traverse of species (ii) of Group 1, directed to hydrophobic and lipophobic properties is acknowledged. The traversal is on the ground(s) that there is substantial overlap between the species. The examiner finds the applicants arguments persuasive and thus withdraws the species restriction requirement.

Claims 21 through 40 and 43 through 47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 12, 2007.

### ***Claim Objections***

Claim 3 is objected to because of the following informalities: Line 5 of claim 3 states, "...oxygen atom boned to the silicon". This appears to be a clerical error and should read, "...oxygen atom bonded to the silicon". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 4 through 7, and 10 through 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, 37 CFR 1.75(c) states (see MPEP 608.01(n) Dependent Claims):

*37 CFR 1.75. Claim(s).*

(c) One or more claims may be presented in dependent form, referring back to and further limiting another claim or claims in the same application.

Claim 4 depends from claim 4, and does not refer back to a previous claim, making its scope indefinite. Claims 5 through 7 and 10 through 12 depend from claim 4 and are thus also rendered indefinite. In order to further prosecution, the examiner is interpreting claim 4 to depend from claim 3.

The term "tenaciously" in claim 6 is a relative term, which renders the claim indefinite. The term "tenaciously" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The examiner is interpreting a covalently bonded coating to meet the limitation of the instant claim.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. The formula (8) does not appear to be a formula for a conventional siloxane. The formula would have a structure –Si-O-Si-Si-O-Si- instead of the conventional –Si-O-Si-O-Si- structure. The examiner is interpreting this to be a stoichiometric representation indicating significantly more silicon than titanium in the structure. Further, if this is meant to be a standard structural formula, the side groups, as drawn, would be methyl groups.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 13 recites the broad recitation "wherein a is from 1 to 1000", and the claim also recites "preferably from 1 to 100", which is the narrower statement of the range/limitation. Claim 14 depends from claim 13 and is thus rendered indefinite.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The structural formula in section b of this claim,  $D-R^7-R^8-Si-O$ , does not match the text for this section. In lines 19 and 20 of the claim, the text states that D,  $R^7$  and  $R^8$  are each covalently bonded to the silicon atom, however as shown D and  $R^7$  are not bonded directly to the silicon atom. The examiner is interpreting this claim to match the text where D,  $R^7$  and  $R^8$  are bonded to the silicon atom.

The term "cosmetically stable" in claim 15 is a relative term, which renders the claim indefinite. The term "cosmetically stable" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There is no time scale, pH range, temperature range, etc. that defines consistently what is meant by cosmetically stable.

Claim 15 recites the limitation "a equals" in the ninth line of the claim. There is insufficient antecedent basis for this limitation in the claim. The formula listed in the fifth line of the claim lists a subscript g, but does not list an a. It is noted that the specification contains the same incongruity. The examiner is interpreting the a and g to have the same meaning as one another. Claims 16 through 20 all depend from claim 15 and are thus rendered indefinite.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites the limitation "and other such groups as will

be apparent from the disclosure herein" in the third line of the claim. The specification lists the same limitation on lines 20 and 21 of Page 38. It is unclear what other groups the applicants intend to include with this limitation.

### ***Claim Rejections - 35 USC § 102***

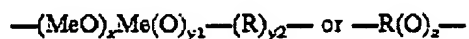
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 through 3, 8, 9, 13, 14, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Glasel et al (WO 2000/22052). The examiner is using Hinterwaldner et al. (US 6,720,072) as the English language equivalent of this document.

Regarding claim 1, Hinterwaldner (Column 2, lines 8 through 46) teaches a metal oxide particle (powder) coated with a compound of the form –B-X where B has the form:



where Me is a metal or semimetal, and x can be 0 to 100, and y1, y2 and z can be 0 or

1. Hinterwaldner (Column 4, lines 33 through 35) further teaches that the metals or semimetals can be different and that the metals are chosen from those taught in Column 4, lines 3 through 25). The preferred metals include Si, Al, Ti, and Zr. Thus, with the first metal of the above formula being Si and the second being Al, Ti, or Zr,

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Hinterwaldner teaches a coated powder where the coating is comprised of siloxy metal units.

Regarding claim 2, Hinterwaldner (Column 2, lines 8 through 46) teaches that the free valences of Me can be bonded to another group B via an oxygen atom.

Regarding claim 3, Hinterwaldner (Column 4, line 52) teaches that the siloxy metal unit can have the form  $\text{-Si-O-Ti-}$ . Titanium is a metal with two or more valences. Hinterwaldner (Column 2, lines 8 through 46) further teaches that the free valences of the Me can bond via an oxygen atom to the core particle. A first oxygen atom can be bonded to the silicon atom as is taught in Column 4, line 65 through Column 5, line 14).

Regarding claim 8, Hinterwaldner (Column 9, lines 33 through 62) teaches that the coating can be formed in two stages, by adding the radical B and then adding the group X, by way of a metal alkoxide reagent. The list of suitable compounds to be added first includes tetramethoxysilane, a multifunctional silicon compound.

Hinterwaldner (Column 9, line 63 through Column 10, line 18) further teaches the metal alkoxide reagents, which include isopropyl triisostearoyl titanate, a multifunctional organometallate compound.

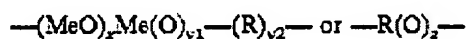
Regarding claim 9, Hinterwaldner (Column 9, line 63 through Column 10, line 18) teaches the metal alkoxide reagents. These include organotitanates. Hinterwaldner (Column 9, lines 63 through 66) further teaches that at least one valence of the metal may be satisfied by a radical other than an alkoxide. If two valences are so satisfied, the organotitinate is difunctional. The list of suitable siloxy compounds includes silicon compositions as evidenced by Arpac et al. (DE 4020316). The German Language



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version of this document is provided with this office action. An English translation will be provided with the next office action. Arpac teaches these compounds on Page 3, lines 5 through 30. These compounds include trialkoxysilanes.

Regarding claim 13, as stated above in the discussion of claim 1, the coating composition can have the form:



where Me is a metal or semimetal, and x can be 0 to 100, and y1, y2 and z can be 0 or 1. The two metals can be different, and if the first metal is Si and the second metal is Ti, this formula meets the stoichiometry of the instant claim. Further with x=3, the compound meets the structure of the instant claim with a=1. Hinterwaldner (Column 2, lines 8 through 46) teaches that the free valences of Me can be bonded to another group B via an oxygen atom or to the core particle or to alkyl groups (Column 5, lines 33 through 37).

Regarding claim 14, Hinterwaldner (Column 5, lines 33 through 37) teaches that the free valences of Me can be bonded to alkyl groups (hydrocarbon groups).

Regarding claim 42, Hinterwaldner (Column 2, lines 8 through 46) teaches a metal oxide core particle. The metals are taught in Column 4, lines 3 through 25. Thus the base particles can include titanium dioxide, aluminum oxide, and silicon dioxide, which are known pigments and fillers. Hinterwaldner (Column 10, lines 19 through 28) further teaches that the particles can be used in compositions for cosmetic areas.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 through 7, 10 through 12, 15 through 20 and 41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Glasel (Hinterwaldner).

Regarding claims 4 and 5, Hinterwaldner (Column 7, lines 5 through 8) teaches that the particles of the invention are generally insoluble in water (hydrophobic). Hinterwaldner (Column 9, lines 33 through 62) further teaches that the coating can be formed in two stages, by adding the radical B and then adding the group X, by way of a metal alkoxide reagent. The list of suitable siloxy compounds to be added first includes silicon compositions as evidenced by Arpac et al. (DE 4020316). Arpac (Page 3, lines 5 through 30) teaches these compounds, which include trialkoxysilanes with a long chain pendant group, for example, triethoxy hexylsilane. This pendant group would provide lipophilic properties to the coating composition. Hinterwaldner (Column 9, line 63 through Column 10, line 18) teaches the metal alkoxide reagents, which include isopropyl triisostearoyl titanate, the same compound as the isopropyl titanium triisostearate of the hybrid coating mixture of Example 1 of the instant application. With

the same titanate and a functionally equivalent silane, the composition would inherently have the same properties of being lipophilic and dispersible in silicone fluids.

Regarding claim 6, as stated above, Hinterwaldner teaches a coated powder with a coating comprising siloxy metal units. Hinterwaldner (Column 2, lines 8 through 46) teaches that the coating B is bonded covalently to the core particle. Hinterwaldner (Column 3, lines 43 through 51) further teaches that the core particles are smaller than 1 mm and preferable of nanometer size. The number of chains attached to the core particle and the weight percentage of the chains is taught in Column 3, lines 33 through 42. There can be as many as 100 side chains attached to the core particle. The side chains can account for 90% by weight of the particles. Hinterwaldner (Column 2, lines 8 through 46) further teaches that other free valences of Me (Si or Ti) can bind to the core particle. Hinterwaldner does not explicitly state that the particle is completely coated. However, with the small particles size and the large number of side chains bonded multiple times to the core particle, the coating would extend over substantially the entire outer surface of the particle. Therefore applicant's composition is anticipated by Hinterwaldner, or in the alternative, would have been obvious to one of ordinary skill in the art based upon the prior art of Hinterwaldner.

Regarding claim 7, Hinterwaldner (Column 3, lines 33 through 42) teaches that the particle can be coated with multiple siloxy metal chains. As stated above, each chain can be comprised of multiple siloxy metal groups, thereby having metallate units interconnecting siloxy units. If x in the formula for B is greater than 1, the siloxy units are polysiloxy units.

Regarding claim 10, Hinterwaldner (Column 2, lines 8 through 46) teaches a metal oxide core particle. The metals are taught in Column 4, lines 3 through 25. Thus, the base particles can include titanium dioxide, aluminum oxide, and silicon dioxide, which are known pigments and fillers. Hinterwaldner (Column 10, lines 19 through 28) further teaches that the particles can be used in compositions for cosmetic areas. The particle size is taught in Column 3, lines 43 through 51 and can be as large as 1 mm, but is preferably in the nanoparticle range. This range overlaps the range of the instant claim.

Regarding claim 11, Hinterwaldner (Column 4, lines 3 through 25) teaches that the metal can be titanium, aluminum, tin, vanadium, zinc or zirconium.

Regarding claim 12, as stated above, the metal M can be titanium, and the coating is comprised of chains formed from siloxy units interspersed with organometallate units. Hinterwaldner (Column 5, line 66 through Column 6, line 4) teaches that the reactive functional groups can crosslink. Hinterwaldner (Column 9, lines 52 through 62) further teaches that the coating composition can be capped from a reaction of a metal alkoxide (an organometallate). Finally, Hinterwaldner (Column 2, lines 8 through 46) teaches that the free valences of the metal can bond to the core particle (powder substrate).

Regarding claims 15 and 41, as stated above, Hinterwaldner teaches a hydrophobic, lipophilic coating covalently bonded to a cosmetic particle via an oxygen atom. The coating composition can be comprised of organotitanate groups interspersed with siloxy groups. The organotitanate groups can be bonded to another coating

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material oxygen atom or to alkyl groups (hydrophobic organic moieties). The siloxy group can also be bonded to alkyl groups (hydrophobic organic moieties) and to oxygen atoms.

Regarding claim 16, Hinterwaldner (Column 2 line 64 through Column 3, line 4) teaches that the alkyl groups can have 1 to 50 carbon atoms. This range overlaps the range of the instant claims.

Regarding claims 17 through 19, as stated above, the organometallate is bonded to the siloxy (or polysiloxy, if  $x$  in the formula for coating B is greater than 1) through an oxygen atom. Hinterwaldner (Column 4, lines 59 through 66) teaches that the either of the metals can be the one that is bonded via an oxygen atom to the core.

Regarding claim 20, based on the formula for B taught by Hinterwaldner (Column 2, lines 8 through 46) the stoichiometric proportion of organometallate units to siloxy units is from 0.01:1 to 1:1. This overlaps the range of the instant claim.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ear

  
**CAROL CHANEY**  
**SUPERVISORY PATENT EXAMINER**